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## Creativity as a critical criterion for future restaurant space design: Developing a novel model with DEMATEL application

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### ABSTRACT

This study investigates the important composition of creativity by examining dimensions of restaurant space design from the expert's perspective. This study presents a novel model of creativity assessment within the context of the Decision Making Trial and Evaluation Laboratory (DEMATEL) method application, and identified 6 main dimensions of creativity (Novelty, Centrality, Importance, Affect, Interactivity and Resolution). Qualitative and quantitative surveys were used in multiple stages of data collection. The results of the DEMATEL analysis show that the "centrality" dimension had significant influence over other dimensions of creativity, while "affect" and "importance" are influences given and received by other dimensions in restaurant space design. Overall, this study identified the relationships and interactions among 6 dimensions and 27 sub-dimensions of creativity and filled a gap created by traditional methods of setting strategies, which only considered the direct effects or single directions of criteria. Theoretical and empirical implications are also discussed.

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### 1. Introduction

For firms struggling to establish and/or maintain success in unstable and dynamic environments, innovation and creativity become increasingly important factors to consider within the trends of global competition (Hotho and Champion, 2011; Zhang and Li, 2010). These trends are especially integral to the restaurant food service industry in national and international multicultural and multiethnic contexts (Liu and Jang, 2009). Kim et al. (2006) have explicitly argued that the intangible attributes of atmosphere, interior design, lighting and dining area layout of restaurants can be important advantages to gaining cash flow, increasing external visibility and improving the likelihood of survival. This is especially true in the restaurant industry, as lifestyles change, dining out becomes commonplace, and customers require new flavors and experiences with a restaurant's atmosphere and dining space design (Liu and Jang, 2009).

Consistent with these world trends and their practical relevance, there has been a growing interest among restaurant owners and managers to understand these intangible attributes, including which factors influence restaurant contributions. The extant

literature on creativity has highlighted the importance of intangible attributes regarding the design criterion within the service industry (Christians, 2002; Zhang and Li, 2010). Creativity is particularly important for the restaurant industry because restaurants face strong competition, which demands continuous renewal and adaptation in daily operations. Thus, generating and exploiting creativity appears to be a foundational requirement for staying in business. Hence, creativity may be a critical attribute of the long-term success of restaurants (Mathisen et al., 2008).

In the past, the Fuzzy Delphi and DEMATEL methods proposed by Chen et al. (2011) have been widely used to examine the relationships between various perspectives on complex subjects. When applying this measuring of multiple criteria, a relatively important item from the Fuzzy Delphi method and an impact-digraph-map (IDM) from DEMATEL about the creativity of the restaurant space is prepared. This helps with measuring the mutual importance of each criterion. In doing so, the key success factors for improvement can be identified, and causal relationships among these key factors can be determined (Shieh et al., 2010). Using this methodology of combining the Fuzzy Delphi and DEMATEL methods, we are therefore able to simultaneously consider multiple criteria for restaurants, which helps decision makers and restaurant managers estimate their best options by sorting a limited number of cases according to the characteristics of creativity.

Although these ideas provide an introduction to understanding the importance of creativity in social contexts, they do not reflect

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the complexity of creativity. This study makes several contributions to the literature. First, prior work has typically addressed restaurants' creativity in the culinary processes of idea preparation, idea incubation, idea development, creativity verification (Horng and Hu, 2008) and conquering the cultural constraints to management creativity (Martinsons and Martinsons, 1996). However, current research lacks the appropriate measures of creativity (Christiaans, 2002; Horn and Salvendy, 2006). Thus, the main goal of this study is to develop a tool for identifying creativity attributes for future restaurant space design. Second, we extend developments in creativity theory and empirical analysis to the different dimensions of creativity. The objective of this study is not to maximize the effective measurements of creativity of creativity, but to validly characterize and measure restaurant creativity from the restaurant designer's perspectives on space design. The main purpose is to construct and validate a restaurant mechanism that captures experts' perceptions of restaurant creativity and then to evaluate the contribution of space design creativity to increase the customers' satisfaction. Third, this study utilized a novel model with the Fuzzy Delphi and DEMATEL application that has never been used to measure the creativity of restaurant space design. This tool will expand upon the strengths of the current methods of capturing the perceptions of the difficult-to-measure constructs of creativity by utilizing a more extensive measurement structure based on professional perceptions of restaurant space design. Fourth, this study investigated and examined both the main dimensions and the sub-dimensions of the relationship of creativity to space design, whereas prior studies failed to do so. Finally, although earlier studies of the restaurant industry have often focused on a single dimension of creativity, this study examines six major dimensions of creativity: Novelty, Centrality, Importance, Affect, Interactivity and Resolution.

Restaurants are part of a special industry and demand specific theoretical attention (Mathisen et al., 2008). Due to burgeoning competition within the restaurant industry, there is currently an increase in emphasis on customers' perceptions of the physical environment of dining space design (Wall and Berry, 2007). This paper extends the previous creativity literatures by exploring how multiple dimensions of creativity can be applied in future restaurant space design and exploited to develop a competitive advantage based on expert perspectives. This study argues that based on the degree to which creativity attributes are influenced by other criteria, restaurant managers can weigh the importance of different relationships among creativity attributes for space design before making a decision. Therefore, the focus of this paper is on identifying relationships among different dimensions of creativity; the research model for this study, as shown in Fig. 1, illustrates the aspects of creativity that are included in this research framework (i.e., Novelty, Centrality, Importance, Affect, Interactivity and Resolution). This study tests the model with multiple data collection processes and with in-depth expert interviews from restaurant space designers of a variety of different backgrounds.

## 2. Literature review

### 2.1. Creativity defined

Based on previous studies involving creativity, creativity is defined as the subjective judgment of novelty and the appropriateness for products (Horn and Salvendy, 2006) to generate new techniques, novel procedures or innovative approaches to performing a job (Perry-Smith and Shalley, 2003). It may also refer to a new combination of two known approaches or concepts that have never previously been linked (Perry-Smith, 2006). Therefore, creativity is not limited to specific types of dimensions; it can fluctuate between

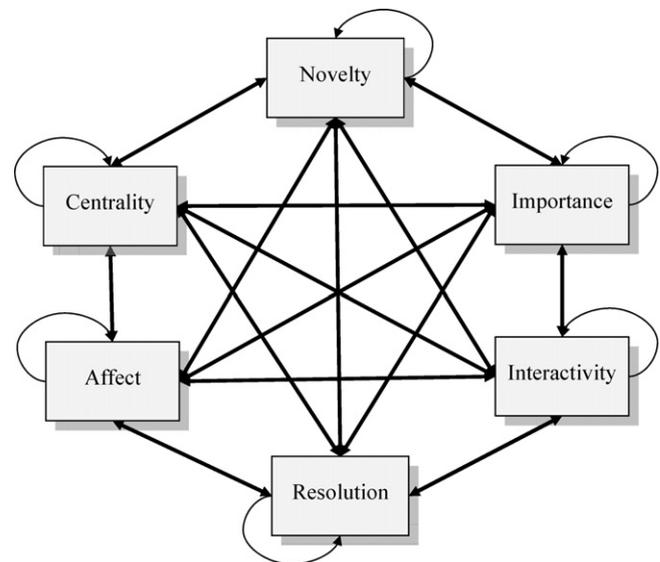


Fig. 1. Main research framework.

different perspectives or viewpoints when performed in various situations. Demirkan and Hasirci (2009) suggested that creativity is the most important criteria for design. Although the judging of designs is practiced daily in real life, the vast amount of research on creativity does not have objective methods of assessment to distinguish between the attributes "creative idea" and "creative concept", which define "an original idea, with the emphasis on the product features", to analyze a creative design that emphasizes the strategic principle in an idea intended to catch the consumer's attention and to evaluate relationships or ranking among different dimensions of creativity (Mercanti-Guerin, 2008).

Analyzing the assessment of creative design, Akin and Akin (1998) concluded that an excellent product should have certain attributes present in the creative design process and improve accumulated design knowledge. Goldschmidt (1991) and Goldschmidt and Tansa (2005) analyzed creative design processes that focused on the links among original ideas and design decisions, specifically considering processes that are abundantly interlinked with other creative attributes. Therefore, the judgment of "creative design" should include a consideration of multiple attributes, and each of the individual ideas should be interconnected. Christiaans (2002) argued that "creative design" always builds on objective judgments to confirm this assumption. In the specific field of design, professionals or trained observers are presumed to provide valuable information that would be more reliable than the information provided by naive observers (Liu et al., 2012).

This concept would apply to restaurant space design where creativity is a valuable criterion. The assumption is that based on comment values and real phenomena within a society, a higher level of consistencies and concurrences will be shown among people who have similar experiences and judgments in the area of creative design (Christiaans, 2002). Runco et al. (1993) suggested that experts provide high-level, esoteric, idiosyncratic standards for judging creativity. This makes for less awareness of differences among design work and presents more reliability and validity within subjective judgments of creativity. This finding was confirmed by Hekkert and van Wieringen (1996). The results of a correlation analysis show that mean ratings on originality and other creativity criteria are much higher among experts than among non-experts. In this study, we tried to find evidence to prove this assumption—that is, that different dimensions of creativity are interrelated and weighted by rank—by introducing a prototypical

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